



Sewer Maintenance Division Environmental Management System Manual



Sewer Maintenance Environmental Management System
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Revision History Log

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Introduction

Environmental management for the Sewer Maintenance Division (SMD) is a strategic priority. The Sewer Maintenance Environmental Management System (SMEMS) is intended to produce continual improvement through the establishment of the following intended outcomes, consistent with Public Utilities' Multi-Year Business Plan:

- a. Continue to meet or exceed regulatory compliance
- b. Continue to improve environmental performance
- c. Continue to develop a competent workforce
- d. Continue to improve communication with internal and external interested parties
- e. Continue to improve work processes to meet customer expectations.

The SMD strives to protect the environment through operations, maintenance and inspections. Operations are emphasized by having certified operators manage work programs and maintain compliance with the Grade 4 Sewer Collection System permit. Evaluation of new processes for environmental compliance is a continual effort that promotes environmental excellence.

Planned Arrangements

The SMEMS is based on the ISO 14001:2015 standards.

SMEMS Manual Procedure

Review and Approval

- Review manual annually and when regulatory or process changes and/or corrective action dictates.
- Recommend and review any updates and other changes arising prior to the annual review at SMEMS team meetings.
- The Environmental Management Coordinator (EMC) will summarize changes to the manual and report to the Assistant Public Utilities Director (APUD) for Wastewater for review.
- Update manual with approved changes (EMC).

Communications and Revisions

1. Inform APUD for Wastewater and SMEMS team of any significant revisions to the SMEMS manual.
1. Post most recent version of the SMEMS manual on the City's intranet (shared network drive).
2. Control manual so that changes can be made only by the EMC or designee.
3. Communicate policy to staff, contractors and to interested parties.
4. Recommended manual revisions shall be communicated to the SMEMS team through management review via the EMC.

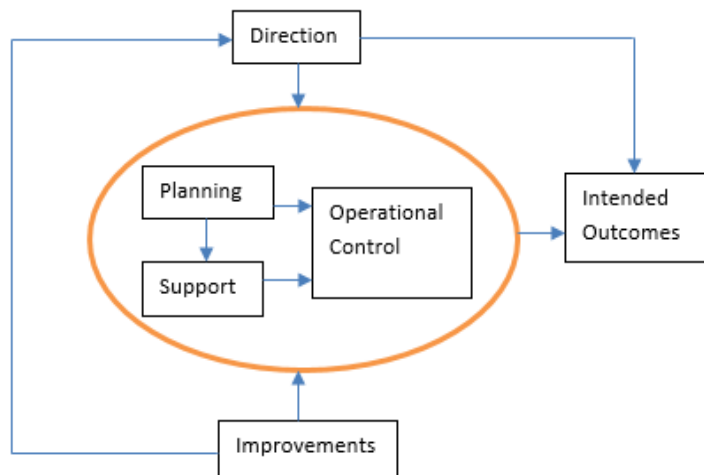
SMEMS Scope

The SMEMS applies to the sanitary sewer collection system within the Raleigh, North Carolina service area.

Boundaries include the Raleigh service area and merger communities. Engineering, design, capital improvements, private property sewer laterals, stormwater, warehousing, facility maintenance, pump station maintenance/repair, and wastewater treatment are not included in this scope.

The above scope has been determined by the SMEMS team to identify environmental aspects.

Management Direction



SMEMS Policy

The SMEMS's Environmental Policy is: "To professionally operate and maintain the sanitary sewer collection system, while meeting our compliance obligations, continually improving environmental performance, and providing environmental protection and pollution prevention."

Commitment to upholding this policy is focused on the following areas:

1. **ECONOMIC:** Manage assets and resources by setting goals, objectives and targets for continual improvement.
2. **SOCIAL:** Communicate and educate stakeholders, interested parties and staff.
3. **ENVIRONMENTAL:** Comply with applicable laws, regulations and requirements. Improve in performance, compliance, and system Operation & Maintenance (O&M) for prevention of pollution to protect the environment.

Approved: 01/01/2014

Revised: 07/20/2018

Approved: T.J. Lynch, Assistant Public Utilities Director

Procedure

- Communicate the policy to employees, relevant contractors and interested parties.
- Post policy statement on the City's intranet and website (raleighnc.gov)
- Train affected employees on the policy. Employees are expected to comply with the letter and intent of this policy.
- Review this policy as required through the Management Review process.

Leadership and Commitment

SMEMS's top management, which includes the Assistant Public Utilities Director for Wastewater and the Sewer Maintenance Division Superintendent, is responsible for the establishment, implementation, and maintenance of the SMEMS, while ensuring integration into the Division's processes. Top management ensures that the SMEMS achieves intended outcomes by setting goals, supporting employee contribution to the SMEMS, promoting improvement, and supporting other managers in their leadership.

Organizational Roles, Responsibilities and Authorities

Purpose

To define the roles and responsibilities of staff and contractors performing SMEMS functions. In addition, other sections and related documents describe roles and responsibilities where relevant to certain procedures.

Responsibility

The overall responsibility for overseeing the SMEMS lies with the EMC. The EMC is sponsored and supported managerially by the APUD for Wastewater, who has the authority to commit resources and people to the Sewer Maintenance Division and the SMEMS. The SMEMS manual is approved by the Public Utilities Director. Future revision and maintenance of the manual can be made by the EMC in conjunction with the SMEMS Team.

- **Raleigh City Council**
Has authority to approve citywide budget and resources
- **Raleigh City Manager/Assistant City Manager**
Top management with responsibility and oversight of citywide budget and resources
- **Public Utilities Director**
Top management with responsibility and authority for oversight of the Public Utilities Department
- **Assistant Public Utilities Director (APUD) for Wastewater**
Top management for oversight of the wastewater system for the department
- **Executive Management Team**
Top management that consists of the Public Utilities Director and the Assistant Public Utilities Directors.
- **Superintendent of Sewer Maintenance (Sewer Maintenance Manager)**
Top management for oversight of wastewater management and overall management of the Sewer Maintenance Division and the environmental performance of the collection system
- **SMEMS Team**
SMD program managers or team leads. Reviews and implements the SMEMS within the programs they manage
- **Management Systems Coordinator**
Overall responsibility for implementing and monitoring the SMEMS
- **Environmental Management Coordinator (EMC)**
Facilitates and coordinates SMEMS activities and reporting the performance for management review
- **Utilities Coordinator**
Assigned duties of EMC
- **Contractors, Vendors and Suppliers**
Provides materials, supplies and services for the effective operation and maintenance of the collection system, and to comply with policies and procedures of the Sewer Maintenance Division as listed in service agreements for contracted activities relevant to sewer maintenance.

Procedure

1. Roles and responsibilities for various individuals (including contractors) that are specific to the SMEMS are assigned by the Superintendent of Sewer Maintenance and the EMC. They are reviewed and updated as necessary on an annual basis.
2. The Sewer Maintenance Manager and the EMC will also review existing roles/responsibilities whenever significant operational changes are made to ensure that roles/responsibilities are appropriately defined. Revisions to the roles and responsibilities tables are made by the EMC.

Internal and External Influences

The SMEMS team has identified the below internal and external influences using various resources which includes:

1. Call Center data (Cityworks)

2. Interested party meetings: Citizen Action Community (CAC), contractor meetings
3. Electronic links to City website (allows interested parties to contact us)

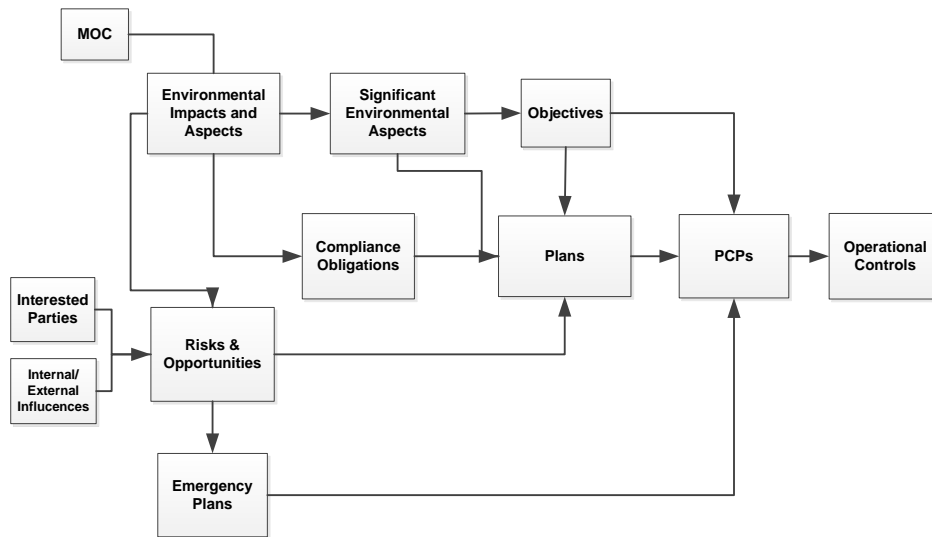
Internal Influences	<ul style="list-style-type: none"> • Communications • Effectiveness of call routing with in the Division • Employee Engagement • Retention (inability)
External Influences	<ul style="list-style-type: none"> • Customer education (sewer use ordinance) • Public perception/practices • Technology support • Weather/climate change

External influences are customer service related/focused and align with Public Utilities' Multi-Year Business Plan, which highlights the desire to become a world-class utility. External influences include regulatory compliance, customers/end users, environmental convictions, and social, political, and competitive circumstances.

Internal influences include Process Control Points (PCPs) and associated Operational Controls

These influences are identified and monitored by the SMEMS, based on system knowledge and best industry practices. Monitoring is achieved by periodic review of the customer call data through Cityworks; responding to stakeholders who attend CAC meetings or make contact via the City website; and considering feedback and input when establishing targets & objectives and significant environmental aspects. The received input is discussed during management review to ensure both internal and external influences are considered when moving forward to become a work-class utility.

Planning



To address SMEMS program components such as environmental aspects and impacts, risk and opportunities, compliance obligations, objectives and targets, interested party input, emergency plans, and internal/external influences, the SMEMS team meets on a periodic basis (at least monthly) to discuss and review any changes. Intended outcomes are considered when identifying these program components.

Significant environmental aspects are reviewed periodically as determined by the SMEMS team or when changes in processes occur. Changes in process may occur due to a change in the City's Strategic Plan, Public Utilities' Multi-Year Business Plan, or directives from City Council.

Action plans to address risks are identified and considered when establishing objectives and targets. These plans are factored in when considering action items required to achieve objectives and targets. Interested party input and internal/external influences are also included in the plans to address risks.

The process control points, significant environmental aspects and operational controls are utilized to determine, objectives and targets, and risk and opportunities (see operational controls). Objectives and targets are reviewed monthly by the SMEMS team to evaluate improvement and are linked to the significant environmental aspects. Effectiveness of these components are reviewed during management review.

Environmental Aspects and Impacts

Purpose

To identify environmental aspect and impacts within the SMEMS that could potentially have an environmental impact, either positive or negative.

Procedure

1. The SMEMS team shall identify and document (Appendix D) environmental aspects and impacts that it has control or influence over, based on historical data, staff experience, system knowledge, public input, and compliance obligations by program areas.
2. Where reasonable, consider both direct and indirect environmental aspects.
3. Following identification of aspects, assign an impact rating, from 1 to 5 in the areas of environmental, business impact, severity and scale to determine significance. Significance is determined by an overall rating of 12 or above or based on the SMEMS's team reasonable assessment, knowledge and history. Compliance obligations are always considered significant.
4. The criteria for determining significance is based upon the opinion, reasonable person judgment, and consensus of the SMEMS team members. When determining the significance of environmental aspects, the SMEMS considers:
 - a. the level of Sewer Maintenance control or influence
 - b. new or modified developments
 - c. activities, products or services
 - d. normal and abnormal conditions
 - e. reasonably foreseeable emergency conditions
 - f. past environmental incidents (experience/history)
 - g. regulation
 - h. business impact, severity, or scale (direct/indirect)
 - i. The SMEMS also considers life cycle stages of products or services that can be controlled or influenced.
5. Document identified significant aspects and actions plans to address them. (Appendix E).
6. Plans to address significant environmental aspects includes: following established procedures, incorporating them into objectives and targets, internal and external influences, risk, opportunities and interested party input.
7. Environmental aspects and impacts will be reviewed by the SMEMS team annually, or when there are regulatory and/or process changes.

Risks and Opportunities

Purpose

To identify risks to the SMEMS's operations that could impede or hinder the ability to achieve the intended outcomes and continual improvement, as well as to identify opportunities for continual improvement.

Procedure

The SMEMS shall determine risks and opportunities that are relevant to the significant environmental aspects, internal and external influences, and compliance obligations. These areas need to be addressed to achieve intended outcomes, prevent or reduce undesired effects, and achieve continual improvement.

Determine Risks and Opportunities

1. The SMEMS team will consider the level of control or influence, normal and abnormal conditions, reasonably foreseeable emergency conditions, lifecycle, and past incidents when identifying risks and opportunities.
2. Risks are assessed according to the criteria of severity, scale, business effect, and likelihood (abnormal only). Levels of high (H), medium (M) or low (L) are based upon history, experience and the reasonable person(s) judgement of the SMEMS team.
3. The SMEMS team shall determine actions plans to address risks and opportunities to avoid and/or mitigate risks, and improvement.
4. Note occasions where the Division does not have a degree of management control or influence over the risk for future review.
5. Consider both harmful and beneficial environmental impacts when determining risks.
6. Consider and incorporate risks into objectives and targets.
7. The SMEMS team will integrate and implement the action plans in the SMEMS process and evaluate the effectiveness of these actions
8. Review Division's activities and risks at least annually, when changes occur to processes and equipment, or other relevant areas.

Compliance Obligations

Purpose

To identify compliance obligations and changes in regulatory compliance issues that are applicable to the Sewer Maintenance Division, and to monitor compliance of contractors.

Procedure

1. The SMEMS team will identify compliance obligations for the Sewer Maintenance Division through networking, communication with regulatory agencies, professional associations and publications, management review process, needs and expectations of interested parties, or any other available means.
2. Establish, document and maintain operational controls for process control points to ensure regulatory compliance with compliance obligations.
3. Document compliance obligations (Appendix C).
4. Address noncompliance through the corrective action process.
5. To ensure compliance obligations are met, periodic inspections or audits are conducted by North Carolina State regulators. Evaluation of compliance with the SMEMS is conducted once per certification cycle.

Monitoring Regulatory Compliance of Contractors

1. Contractors are to adhere to applicable regulatory and other requirements as stated in their contract agreement.
2. Contract liaisons will monitor, record, and identify regulatory and contractual compliance or noncompliance during site inspections.
3. Contractors will be notified, by the SME MS contract liaison, of changes via various methods to include: electronic communication, face to face meetings, and Management of Change (MOC) process.
4. The Contractor shall implement changes in their work practices, related to changes in compliance obligations that would impact their involvement in the SME MS. These changes will be verified through internal audit, by the SME MS contract liaison.
5. Contractors will notify the SME MS contract liaison for any contractual (non-regulatory) noncompliance.
6. Address any noncompliance issues through the corrective action process.

Objectives and Targets

Purpose

To establish objectives and targets for continuous improvement of the SME MS (see Objectives and Targets chart).

Procedure

1. Objective and targets shall be established annually considering management policy, risks and opportunities, compliance obligations, significant environmental aspects, and any input received from interested parties; using the SMART criteria and consistent with the SME MS.
2. Set objectives that support performance improvements in the intended outcome areas.
3. Final objectives and targets will be posted on the City of Raleigh's webpage, internal shared drive and Intalex.
4. Develop an action plan assigning responsibilities and necessary resources and action items for established objectives and targets.
5. At scheduled intervals, the SME MS team will monitor progress towards objectives and targets and evaluate results at management reviews and internal audits. Consider objectives and targets and make recommendations during annual budget development process for appropriate resources.
6. Use the corrective action process if progress is considered inadequate or items are not met.

Management of Change (MOC)

Purpose

To identify and address when there are changes in conditions, significant environmental aspects, impacts, regulations, other requirements or when new development occurs that affects the operation of the Sewer Maintenance Division.

Procedure

1. Monitor for changing conditions, requirements, or regulations that necessitate modification to the operation of the Sewer Maintenance Division.
2. Assess divisional processes affected by changing conditions or requirements; assess if there are effects on aspects, impacts or risks; and review initiation of those changes at SMEMS team meetings.
3. Assign staff to design and implement the changes.
4. Document the changes using the MOC form and implement approved changes.
5. Update procedures and documents per established procedures.
6. Retrain affected staff and contractors on revised procedures and practices as soon as practical (SMEMS Team and appropriate supervisors).

Process Control Points (PCPs) (Appendix C)

1. Evaluate processes and management activities to identify and maintain up-to-date listings of PCPs and operational controls of identified PCPs (SMEMS Team).
2. Consider compliance obligation requirements, public acceptance requirements, significant environmental aspects, as well as institutional knowledge when identifying and/or updating PCPs and risk and opportunities.
3. Document PCPs.
4. Establish Divisional Operating Procedures (DOPs) for monitoring and measuring operating performance and compliance with compliance obligations at PCPs.
5. Review PCPs when there are regulatory changes or whenever operational changes occur and use MOC process for operational and process changes.
6. Establish DOIs/DOPs or monitoring and measuring operating performance and compliance obligations at PCPs.
7. Review PCPs when there are regulatory changes or whenever operational changes occur.
8. If revisions to the PCPs are made, information related to operational controls, monitoring and measurement or any other relevant areas of the SMEMS (including significant environmental aspects listed in Appendix E) will also be reviewed, modified and documented as appropriate.

Support

The Sewer Maintenance Division will provide the necessary resources for the SMEMS. Resources include, but are not limited to: human resources, specialized skills, technology, and financial support. These identified resources are needed for the effective functioning and improvement of the SMEMS. This will be verified by establishing a training program, conducting internal audits, holding regularly scheduled management reviews, and fulfilling the roles and responsibilities of the SMEMS team.

Competence and Awareness

Purpose

To identify, track and provide training activities to ensure competency of staff in the sewer collection system and SMEMS functions, including training activities of contractors.

Procedure

Competence

1. Evaluate competency and awareness of staff and identify appropriate training.
2. Assess staff competency in performing their assigned responsibilities using some of the following methods:
 - a. City of Raleigh Job Descriptions
 - b. Position Description Questionnaires
 - c. Oral or written tests
 - d. Peer reviews
 - e. Communication
 - f. On the job observations and compliance audits
 - g. Annual goal setting meetings, mid-year performance review and annual performance evaluations.
3. Provide additional training in areas where skill may need to be improved when competency is determined to be inadequate.

Awareness

1. Conduct awareness training on the SME MS at least annually, promoting awareness of environmental aspects, policy, DOPs and MOCs through discussions at staff meetings, pre-job meetings and Division meetings.
2. Conduct awareness training with new and transferred employees on policy and general SME MS awareness as part of New Employee Orientation (NEO).
3. Provide employees general awareness in the areas of: environmental policy, significant aspects; their contribution to the effectiveness of the SME MS, benefits of the SME MS; implications for not conforming to SME MS requirements and not fulfilling compliance obligations.
4. Conduct awareness training on facility emergency action procedures.
5. Post SME MS policy at locations throughout the facility.
6. Contractors performing work for the SMD will be made aware that the Division operates under the SME MS.
7. Notify contractors of the SME MS policy and require establishment of their own training program that is consistent with the SME MS. Contractor personnel training requirements will be monitored on a periodic basis and reported to the contract liaisons.

Recordkeeping

1. Document attendance at SME MS training sessions and maintain records.
2. Maintain employee training records, in Intelx, containing certifications and/or attendance sheets for training sessions attended, both inside and outside of Public Utilities.
3. Program Managers shall maintain competency records for their programs that can be used as a reference for performance evaluations.
4. Contractor training records are maintained by the respective contractor's human resources divisions, as defined in service agreements and Memorandum of Understanding or contracts.

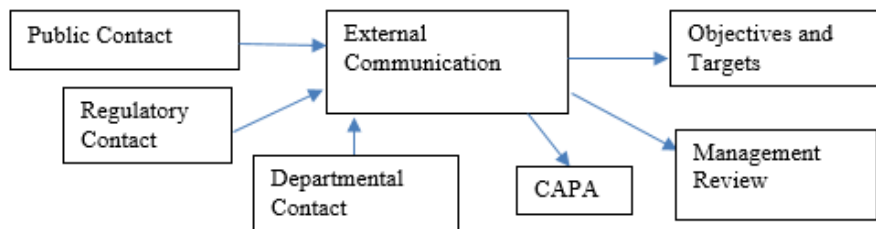
Communications

Purpose

To establish, implement and maintain processes to provide and receive external communication from interested parties and contractors, and internal communication from sewer maintenance staff in the sewer maintenance program, relevant to the SMEMS processes and compliance obligations.

Procedure

1. Provide opportunities for interested parties to communicate their input on environmental impacts, program performance and areas in which the program can improve, utilizing various forms of communication media.
2. Review input received (if any) at SMEMS team meetings for relevancy and consideration into planning Sewer Maintenance operations.
3. Document SMEMS related education and outreach efforts.
4. Report the performance and outcomes of the SMEMS, at least annually, in the development of the Annual Wastewater Collection and Treatment System Report.



External Communications

1. Communicate through press releases, notices of discharge, paid legal advertisements, and informational brochures, bill stuffers, door hangers, COR website, public community outreach, and vehicle informational wrap.
2. Document contact, input and information received, from formal and informal, via Cityworks.
3. Review and update objectives and targets to help address and incorporate comments and/or concerns received when feasible and/or appropriate.
4. SMEMS information and input from Contractors may be communicated by and to the appropriate SMEMS staff (contract liaison).

Internal Communications

2. Report relevant and required information as detailed in Appendix F about Sewer Maintenance activities to staff via emails, memos, staff meetings, postings on the Marlin boards or other methods. SMEMS information is also available on the City's intranet.
3. Provide opportunities for employee input into the SMEMS via CAPAs, emails, open door discussions, and program specific SMEMS meetings.
4. Input will be considered in the development of objectives and targets and identifying risk and opportunities for continual improvement of the SMEMS.

Documented Information

Purpose

To identify and document information that is required to support and demonstrate performance of the SME MS. This applies to contractor activities within the Sewer Maintenance Division as stated in their service agreement, Memorandum of Understanding and/or contracts but does not apply to contractor's internal documents, which are controlled and managed according to contractor's internal procedures as appropriate.

Procedure

1. Documents are to be titled, numbered and formatted electronically to include the SME MS title, original date, revision date and page number.
2. Documents will be reviewed and approved for suitability and adequacy.

Control of Documented Information

1. Identify documented information that requires control or that has been deemed important by the SME MS team, the responsible party, location of stored documents and retention requirement (if applicable) (Appendix G).
2. Controlled documents are published in Intalex.
3. Review of controlled documents may be made in response to: management of change, corrective action, regulatory requirement, management review, review of DOPs or periodic reviews.
4. Modifications of documents can be made by the EMC, Superintendent, or their designee after SME MS team has reviewed and authorized changes.
5. All printed copies of SME MS documents are labeled uncontrolled.
6. Follow the NC Records Retention and Disposition Schedules for Counties and Municipalities and the US EPA records retention guidelines for controlled records.
7. Archive or properly dispose obsolete versions of the documents.

Operational Control

Process Control Points (PCPs) are identified and updated in the processes where service quality, compliance obligations, public acceptance and environmental impacts can be controlled. Operational controls are tools utilized to effectively manage outcomes at PCPs to meet compliance obligations and manage significant environmental impacts.

To maintain a life cycle perspective, the SME MS addresses environmental requirements of the Sewer Collection Permit and the SME MS in work process and when procuring products and services. This is achieved by including statement in Request for Proposals (RFPs) notifying potential contractors of the SME MS and their requirement to conform to the expectations of this system. Additionally, contractors who are awarded work with the Sewer Maintenance Division are required to sign the Contractor Memorandum of Understanding. This document communicates the Division's responsibilities to the contractor within the limits of the SME MS as well as relevant environmental requirements of the contractor.

Purpose

To identify process control points for processes and establish, implement and maintain operational controls for those processes.

Procedure**Operational Controls** (Appendix C)

1. Evaluate PCPs to identify operational controls that can affect or influence outcomes.
2. Document identify operational controls.
3. Monitor operational data daily for compliance and record in Cityworks.
4. Update operational controls and monitoring and measurement procedures as necessary.
5. Consider life cycle perspective when developing operational controls.

Emergency Preparedness**Purpose**

To ensure effective response to accidents and emergency situations associated with Sewer Maintenance activities, and to help minimize consequences or associated risks, including activities of contractors.

Procedure

1. Review and update the Sewer Maintenance Emergency Action Plan (EAP) at least annually, based on desktop exercises, actual exercises, drills, after action reviews or change in personnel.
2. Evaluate and have input in updating the comprehensive Emergency Operations Plan (EOP) and the Public Utilities Employee Evacuation Plan (EEP) least every three years.
3. Conduct periodic emergency response testing and training.
4. Conduct investigations of emergency situations associated with Sewer Maintenance activities and document corrective action plans for incidents and emergency situations.
5. Monitor Sewer Maintenance contractors during periodic site visits, by assigned contract liaison, to verify they have the most current version of the EOP/EAP on file and follow the guidelines in these documents that are applicable to Sewer Maintenance activities as stated in their service agreement and Memorandum of Understanding.

Performance Evaluation

Periodic review of the SMEMS takes place through internal audits, monitoring and measuring and management reviews to track and evaluate performance of the system and to identify opportunities for improvement.

Monitoring, Measurement, Analysis and Evaluation

Purpose

To monitor environmental performance with applicable compliance obligations requirements, measure performance at PCPs, and track progress toward achievement of objectives.

Procedure

1. The SMEMS monitors and measures the following Key Performance Indicators (KPIs):
 - a. SSO rate (reportable vs. reportable dry weather)
 - b. Spill mitigation costs
 - c. Footage (miles) of pipe cleaned (permit mandates 10% of system)
 - d. Footage (miles) of easement maintained
 - e. Footage (miles) pipe inspected via CCTV
 - f. Service request response times
 - g. Vacancy rate
 - h. Average SSO volume
 - i. Accident/injuries by type
 - j. Repair reactive vs. corrective work
 - k. Backlog by work type
 - l. FOG enforcements
2. Items related to compliance obligations, monthly performance, targets and objectives as well as significant aspects will be monitored.
3. The methods for monitoring are based upon compliance obligations and/or existing performance metrics requested by Executive Management Team. Information is analyzed, evaluated, documented and reported via periodic performance reports.
4. Data input by staff and monitored by the program managers occurs on a continual basis and may be discussed in regularly scheduled SMEMS Meetings, SMEMS Committee (Program) Meetings, and Management Review Meetings.
5. Review monitoring and measurement activities whenever significant changes in process, operations or regulatory compliance occur.

Internal Audit

Purpose

To perform periodic review of the SME MS to evaluate its performance and identify opportunities for improvement.

Procedure

1. The SME MS team will develop a three-year audit schedule, for conducting internal and process audits, based upon the SME MS's processes.
2. The SME MS team develops the purpose, scope, criteria and plans for internal audits.
3. Evaluate SME MS's performance of the process of continual improvement of the intended outcomes and progress of established program objectives and targets.
4. The auditor will conduct audit, develop report, and review preliminary audit results (findings and/or opportunities) with the process owner and the SME MS team.
5. Findings and/or opportunities will be addressed by using the corrective action process, based on the decision of the SME MS team. A corrective action plan will be written to include task and role assignments.
6. Corrective actions will be presented to the auditor and the auditors will follow-up to verify corrective action results.
7. The EMC will present audit report as part of the Management Review process.

Selecting and Training Auditors

1. The SME MS team, selects auditors to conduct internal audits. Auditors must be impartial and objective in the area being audited.
2. Internal auditors cannot audit areas where they have responsibilities.

Corrective Action

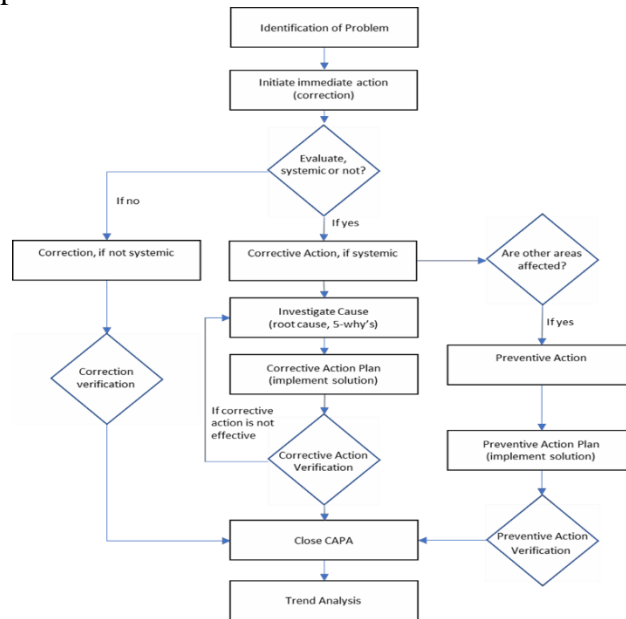
Purpose

Identify findings, potential problems or opportunities discovered during routine monitoring and measurement, emergency incidents, audits, experience or other methods.

Procedure

1. Identify the issue and initiate correction. Determine if the issue is systemic.
2. For non-systemic issues, correction is all that is needed. Document the immediate correction and take no further action.
3. For systemic issues, conduct a root cause analysis.
4. Document problem or issue using SME MS Corrective and Preventive Action (CAPA) form and present to SME MS team and/or affected parties. The status of CAPAs are maintained using a tracking log (EMC).
5. Some issues that will automatically go through the corrective action process are: escalated complaints, incidents & accidents, audit findings or regulatory noncompliance, and can include not meeting objectives.
6. Develop corrective action plan to implement appropriate corrective and preventive actions.
7. Review and approve proposed corrective action plans and assign to the appropriate staff.
8. CAPAs identifying a change in procedure, policy, workflow and/or equipment needs are communicated through the Management of Change (MOC) process and presented to affected parties.

9. Affected parties will review the MOC, sign for approval and the change will be implemented.
10. Monitor and review progress of corrective actions via SMEMS program meetings. Once verified, CAPAs are closed by the appropriate team member.
11. The EMC will periodically review CAPA logs for systemic problems or trends identifying areas of concern.
12. Systemic issues are reviewed with the SMEMS team, addressed via CAPAs, and are reported to management as part of the Management Review process.
13. Noncompliances of Sanitary Sewer Overflows (SSOs) will be tracked through the BasinWide Information Management System (BIMS) process.



Management Review

Purpose

To provide a strategic review of the SMEMS, at scheduled intervals, to ensure SMEMS's suitability, adequacy and effectiveness and to identify continual improvement opportunities.

Procedure

1. The SMEMS EMC or designee will conduct periodic Management Reviews with Top Management, which includes the Assistant Director for Wastewater and Sewer Maintenance Superintendent.
2. Management Review will include:
 - a. Status of actions from prior management reviews
 - b. Changes in external and internal influences relevant to SMEMS, needs and expectations of interested parties including compliance obligations, significant environmental aspects and risk and opportunities
 - c. Progress towards achieving objectives and targets
 - d. Update on SMEMS's environmental performance, to include nonconformities and corrective actions, monitoring and measurement results, fulfilment of compliance obligations and audit results
 - e. Adequacy of SMEMS's resources
 - f. Relevant communication, including complaints, with interested parties
 - g. Opportunities for continual improvement
3. Discuss and provide information to Management Review participants in advance of management review along with recommendations for improvements (SMEMS Team).
4. Top Management will review suitability, effectiveness, and adequacy of the SMEMS, including: actions required when environmental objectives are not achieved; opportunities to improve SMEMS's integration with other business processes; and implications for a strategic direction.
5. Prepare and post minutes on discussions and action items from Management Review.
6. Assign responsibilities on action items with timelines.

Glossary of Terms

- **Abnormal Conditions** – Occur infrequently and are not part of day to day operations.
- **Appendices** - Documents that relate more to the sewer maintenance management system as a whole. The manual is complete without the appendices, but appendices add insight into the sewer maintenance management program.
- **APUD** – Assistant Public Utilities Director.
- **BIMS** – BasinWide Information Management System is an incident portal used for entering incidents (i.e. SSOs, Bypasses, Complaints, Spills.) and 5-day SSO follow-up reports by municipalities.
- **CAPA** – Corrective and preventive action.
- **CORPUD** – City of Raleigh Public Utilities Department.
- **Contractor Memorandum of Understanding** – Document signed by contractors or supplies stating their understanding of the SMEMS program and detailing their responsibilities under that program; this document also details the City’s responsibility to contractors under the SMEMS program.
- **Direct Environmental Aspects** – Activities that the SMEMS has influence or control over (Example: Emissions from processes).
- **DOP/DOI** – Divisional Operating Procedures/Departmental Operating Instructions. Standard work instructions and practices for employees describing the “how to” steps in managing PCPs of a specific management activity affecting sewer maintenance activities, compliance with legal and other requirements.
- **EMC** – Environmental Management Coordinator
- **Environmental Aspects** – Activities or services or products that can interact with the environment.
- **Environmental Impacts** – Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organizations activities or services (environmental aspects).
- **Emergency Conditions** - Occurs as a result of an unexpected sudden/severe event.
- **EAP** – Emergency Action Plan.
- **EEP** – Employee Evacuation Plan.
- **EOP** – Emergency Operations Plan
- **Goals** –Desired outcomes and/or improvements to the system.
- **Indirect Environmental Aspects** – Activities that the SMEMS can be expected to have an influence but no control over. (Example: customer control, supply chain, etc.)
- **Interested Parties** – Person or organization that can affect, be affected by or perceive itself to be affected by a decision or activity of the SMEMS.
- **Internal Audit** – A systematic internal investigation process for objectively evaluating the conformance to the requirements of the SMEMS and identifying deficiencies to be corrected or resolved.
- **Intelex** – Cloud based software used to store training records and controlled documents.
- **Intranet** - the CORPUD shared drive.
- **ISO 14001:2015 Standards** – International Organization for Standardization (ISO) is a guidance document designed to assist in the development and implementation of a management system that meets the requirements set forth in the ISO 14001 standards (EMS Elements).

- **Life cycle** – The consecutive and interlinked stages of a product or service system, from raw material acquisition or generation from natural resources to final disposal. The life cycle stages include: acquisition of raw material, design, production, transportation/delivery, use, end-of-life treatment and final disposal.
- **Noncompliances** – A deviation from federal, state and local laws, regulations and other compliance requirements applicable to sewer maintenance activities.
- **Nonconformances** - a deviation from wastewater management policy, SMEMS procedures/requirements, ISO 14001:2004 American National Standards. They include circumstances that can create a noncompliance situation or significant environmental impacts.
- **Normal Conditions** – Occurs as a result of normal operations, on a day to day basis.
- **O&M Manuals** – Operation and Maintenance manuals.
- **Objectives** – Measurable improvements to established goals.
- **Operational Controls** – Include associated DOPs/DOIs, O&M manuals, maintenance procedures, contracts and employee skills that are required to effectively manage PCPs and meet legal and other requirements; including conformance with policy requirements and achievement of objectives and targets.
- **Other Requirements** – Other binding sewer maintenance management practices and requirements to which the Sewer Maintenance Division follows as part of the sewer maintenance management system. Examples include binding agreements with customers, suppliers, public organizations and commitments to going beyond compliance.
- **PCP** – Process Control Point: the points in the processes where legal compliance and requirements, public acceptance and environmental impacts can be controlled.
- **Relevant Interested Parties:** Persons or organization that are affect by or can affect the decisions and/or activities of the SMEMS's compliance obligations.
- **Responsible Party:** Individual(s) who are designated to complete actions or tasks defined in CAPAs or MOCs.
- **Risks** – The effect of uncertainty, often expressed in terms of a combination of consequences of an event (including changing circumstances) and the associated likelihood of occurrence.
- **Risk and Opportunities** – Potential adverse effects (threats) and potential beneficial effects (opportunities) related to the organization's important environmental issues (its context) scope and SMEMS requirements.
- **Service Agreements** –The contract between the City (Sewer Maintenance) and other person(s) to perform specific activities and services.
- **SMART Criteria** – Specific, Measurable, Achievable, Relevant, Time-bound; criteria that is used to define and evaluate the suitability of a goal or objective/target.
- **SME** – Subject Matter Expert
- **SMEMS** – Sewer Maintenance Environmental Management System: management framework for integrating environmental considerations into day-to-day operations and decision-making, and for improving organizational performance over time.
- **SMEMS Top Management Team** – Includes Assistant Director for Wastewater, Sewer Maintenance Superintendent Assistant Water/Sewer Superintendents, and the EMC.
- **SMEMS Team** – Includes Superintendent, Assistant Water/Sewer Superintendents, program supervisors and managers for the Sewer Maintenance Division. Also includes the EMC.
- **Systemic Issue:** Recurrence of the same issue or a problem due to issues inherent to the overall system, rather than due to specific, individual or isolated factor.

- **Third party Verification Audit** – A systematic, structured audit of the SMEMS; performed by a qualified independent third-party auditor using a standardized protocol for verification.
- **Trend** - A pattern of change in a condition, output, or process.